Section 2 –
Progress Made towards OSW's GPRA Goals for the Priority Chemicals

OSW Goals

This section discusses the progress that has been made toward reducing the quantity of the Priority Chemicals (PCs) in wastes.

The 1993 Government Performance and Results Act (GPRA) requires the Agency to set strategic goals, and to update them every 3 years. In 2004, OSW established a goal aiming for a 10 percent reduction of an expanded list of PCs over a broad universe of wastes, using a 2001 baseline. This goal includes an expanded list of PCs and additional segments of the TRI reporting universe and, as such, identifies new opportunities for reducing PCs.

Previous Trends Reports presented progress toward OSW's PCs goal published in the Agency's last Strategic Plan. This goal was to attain a 50 percent reduction of 17 PCs by 2005, using the baseline year of 1991. EPA achieved this goal as of the 2001 Toxics Release Inventory (TRI) reporting year, with a 52 percent reduction in the quantity of the 17 PCs in wastes (Exhibit 2.10). This will be our last report on our success in achieving our previous goal.

Exhibit 2.1. List of Priority Chemicals Tracked for the OSW Goals

The Priority Chemicals	
Priority Chemicals Reported to TRI Since 1991 –included in both the 2005 and 2008 GPRA Goals	
Anthracene	Mercury and Mercury Compounds
Methoxychlor	Cadmium and Cadmium Compounds
Dibenzofuran	Lead and Lead Compounds
Naphthalene	Lindane
Heptachlor	Pentachlorophenol
Hexachloro-1, 3-butadiene	Quintozene
Hexachlorobenzene	1,2,4 - Trichlorobenzene
Hexachloroethane	2,4,5 - Trichlorophenol
Trifluralin	
Priority Chemicals for Which Reporting to TRI Began in 1995 or 2000 – only included in the 2008 GPRA Goal	
Pendimethalin (1995)	Benzo(g,h,i)perylene (2000)
Phenanthrene (1995)	Dioxins and Dioxin-like Compounds (2000)
Pentachlorobenzene (2000)	TRI Polycyclic Aromatic Compounds (PAC) category (1995)

The OSW GPRA Goal (2001-2003)

What Progress are we making toward the GPRA Goal? This section discusses progress toward OSW's GPRA goal of a 10 percent-reduction of the 23 PCs in hazardous and non-hazardous waste by the year 2008. Exhibit 2.3 shows the quantities of each of the 23 PCs that were reported to the TRI for 2001 through 2003 and the percent reduction from 2001 to 2003. As of 2003, there was a 5.7 percent reduction in the total quantity of PCs contained in wastes, compared to the quantities generated in 2001, with approximately half of the PCs having decreased.

Exhibit 2.2. National Progress Made Towards the Goal to Reduce Priority Chemicals by 10 Percent

Reporting Year	2001	2002	2003
Total Quantity (lbs)	84,015,526	79,250,350	79,232,695
Percent Change from Baseline Year (2001)	Baseline Year	-5.7%	-5.7%

Progress by Chemical

Exhibit 2.3. National GPRA Quantity (lbs) of Priority Chemicals (2001-2003)

CHEMICAL NAME	Reporting Year			Percent Reduction (2001-2003)
	2001	2002	2003	
Lead and Lead Compounds	36,996,580	34,907,262	36,667,276	-0.90%
Polycyclic Aromatic Compounds	14,115,733	12,771,563	12,672,606	-10.20%
Naphthalene	10,340,355	11,248,654	10,399,334	0.60%
Hexachloro-1,3-butadiene	6,404,741	5,167,385	5,566,299	-13.10%
Hexachlorobenzene	5,765,862	4,208,878	4,272,727	-25.90%
Hexachloroethane	4,145,249	4,056,497	2,734,341	-34.00%
Phenanthrene	236,212	2,309,275	1,817,292	669.30%
1,2,4 - Trichlorobenzene	2,182,996	1,527,029	1,674,271	-23.30%
Cadmium and Cadmium Compounds	932,493	749,570	817,579	-12.30%
Quintozene	491,098	412,230	604,434	23.10%
Pentachlorobenzene	487,719	311,156	484,733	-0.60%
Pendimethalin	200,195	421,827	429,551	114.60%
Anthracene	360,830	345,482	419,068	16.10%
Benzo(g,h,i)perylene	988,675	308,362	315,294	-68.10%
Pentachlorophenol	54,339	36,856	160,760	195.80%
Dibenzofuran	66,720	288,912	75,605	13.30%
Trifluralin	93,489	63,555	57,290	-38.70%
Mercury and Mercury Compounds	130,828	97,130	40,544	-69.00%
2,4,5 - Trichlorophenol	20,657	17,913	22,857	10.70%
Dioxin and Dioxin-like Compounds	708	551	709	0.10%
Lindane	46	183	71	54.30%
Heptachlor	0	79	54	NA
Methoxychlor	1	1	0	-100.00%
Total	84,015,526	79,250,350	79,232,695	-5.70%

In 2003, five chemicals accounted for 88 percent of the total quantity of Priority Chemicals, lead (46.3%), polycyclic aromatic compounds (16%), naphthalene (13.1%), hexachloro-1,3-butadiene (7%), and hexachlorobenzene (5.4%). From 2001-2003, four of these 5 chemicals had a decrease in quantity. The PCs with the largest decrease in quantity from 2001-2003 are illustrated in Exhibits 2.4 and 2.5.

Exhibit 2.4. Top 5 (GPRA) Priority Chemicals with the Largest Quantity Decrease (2001-2003)

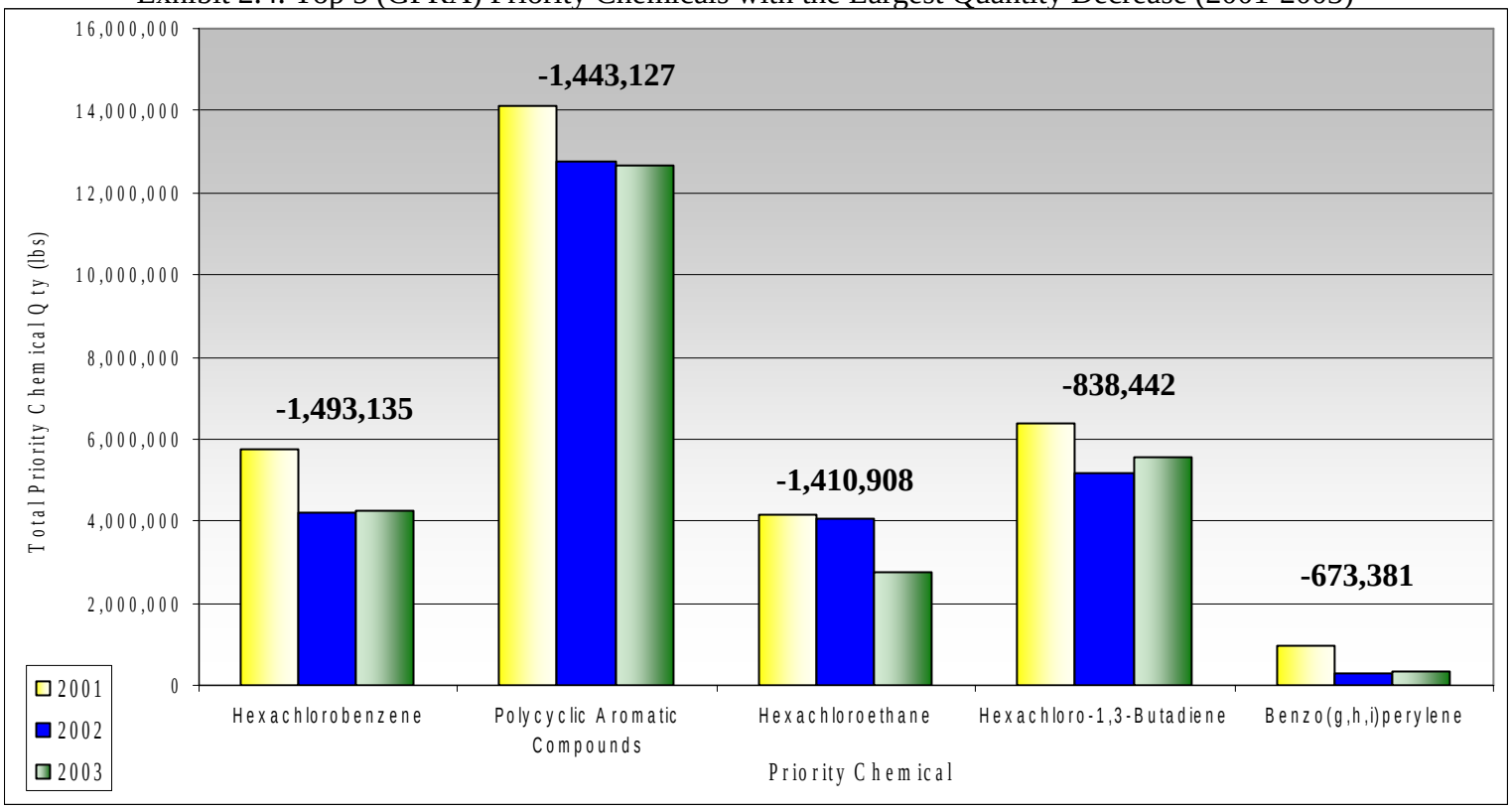
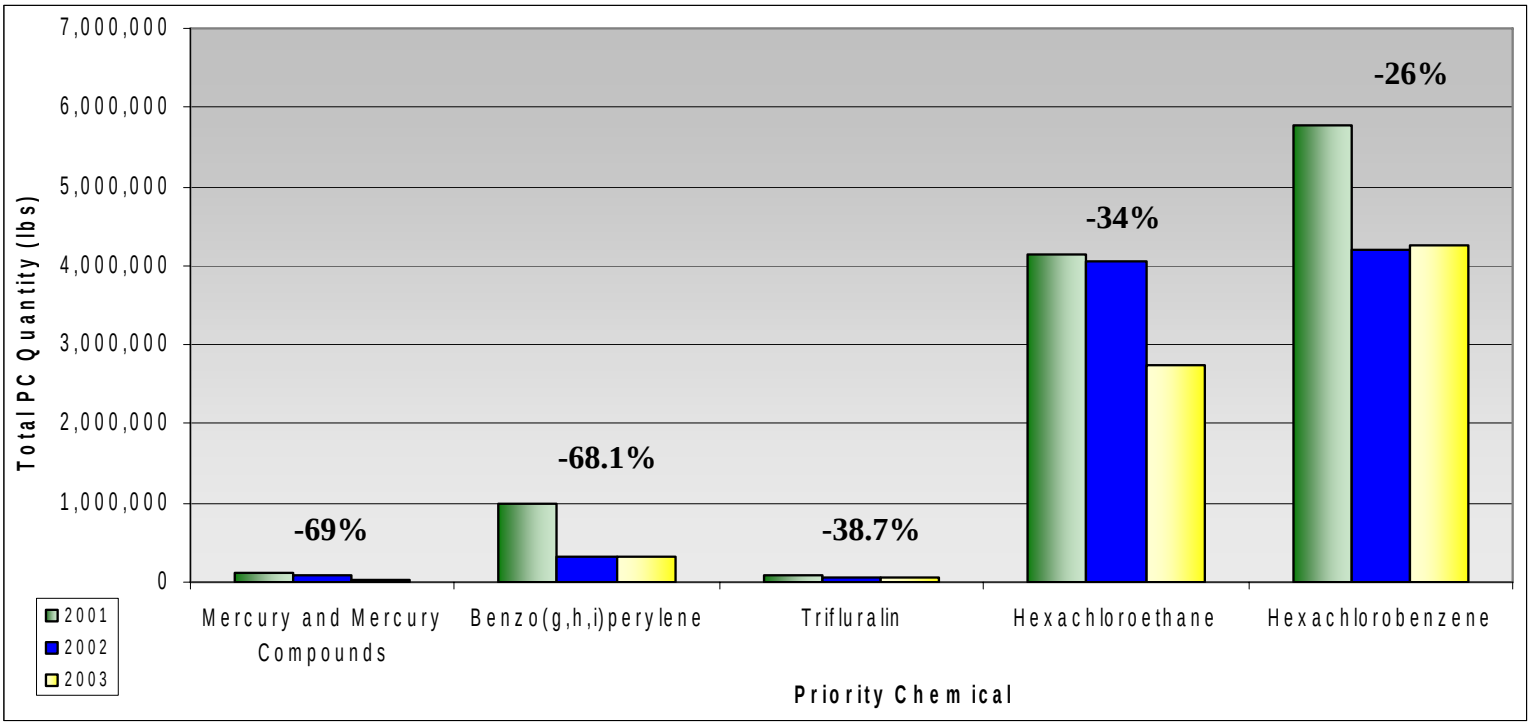


Exhibit 2.5. Top 5 (GPRA) Priority Chemicals with the Largest Percentage Decrease (2001-2003)



Hexachlorobenzene had the largest quantity decrease (Exhibit 2.4) – almost 1.5 million pounds, followed by polycyclic aromatic compounds (PACs) with a decrease of 1.4 million pounds. Mercury had the largest percentage decrease with -69% from 2001 to 2003 (Exhibit 2.5).

Exhibit 2.6. Top 4 (GPRA) Priority Chemicals with the Largest Quantity Increase (2001-2003)

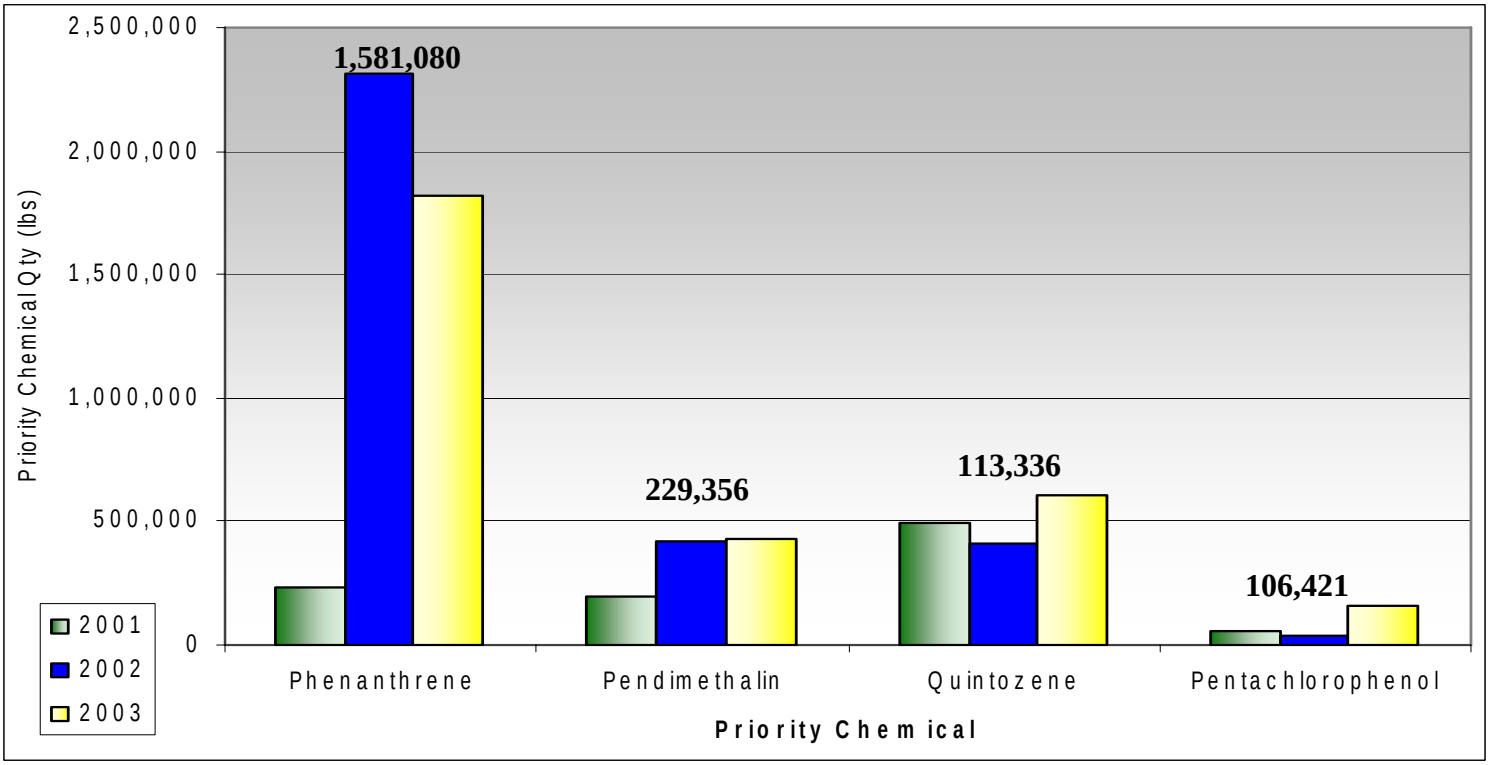
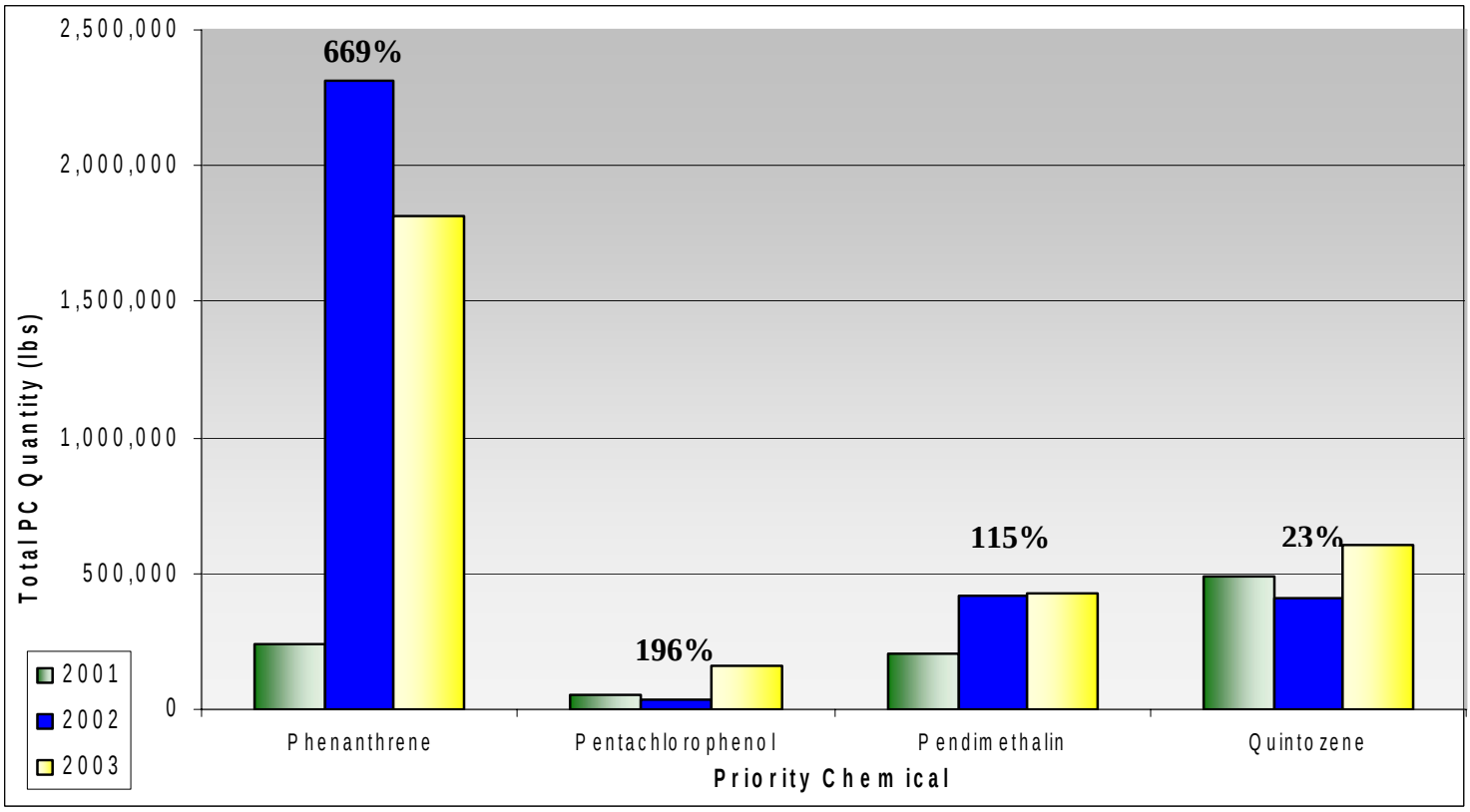


Exhibit 2.7. Top 4 (GPRA) Priority Chemicals with the Largest Percentage Increase (2001-2003)



Phenanthrene had the largest quantity increase (Exhibit 2.6) – almost 1.6 million pounds, followed by pendimethalin with an increase of nearly 230,000 pounds.

Progress by Industry Sector. Five industry sectors, as shown in Exhibit 2.8, accounted for over 50 percent of the total quantity of the PCs. From 2001-2003, three of the industry sectors (Industrial Organic chemicals nec, Secondary Nonferrous metals, and Carbon Black) had a significant increase in quantity of PCs, one industry sector (Alkalies and Chlorine) saw a significant decrease, and the remaining sector's (Blast Furnaces and Steel Mills) quantity was virtually unchanged.

Exhibit 2.8. Industry Sectors that Accounted for 50 Percent of Total Quantity of Priority Chemicals in 2003

SIC CODE	SIC CODE DESCRIPTION	2001	2002	2003	Percent Change in Quantity (2001-2003)	Percent of Total Quantity (2003)
3341	Secondary nonferrous metals	9,720,459	11,993,360	12,933,583	33.1%	16.3%
2869	Industrial organic chemicals, nec	2,161,860	6,768,248	8,466,025	291.6%	10.7%
3312	Blast furnaces and steel mills	7,940,587	7,010,168	7,901,057	-0.5%	10.0%
2812	Alkalies and chlorine	18,975,349	12,511,312	7,456,586	-60.7%	9.4%
2895	Carbon black	3,454,362	3,922,074	4,052,612	17.3%	5.1%

A more detailed discussion of the trends for the PCs, as a group, from 1999 through 2003, is found in Section 3. In Section 4, the trends for each PC are discussed.

The Previous GPRA Goal (1991-2003)

What Progress did OSW make toward the previous GPRA Goal? Between 1991 and 2003, the total quantity of these 17 PCs measured in OSW's previous goal declined by 59.4 percent. Over this period of time, the overall trend has been a steady reduction in the quantity of these PCs, and as of 2001, the 2005 goal of a 50 percent reduction was met. Exhibit 2.9 shows the total quantity of these 17 PCs that were reported to the TRI since 1991, for each year from 1991 through 2003. For a discussion of how these quantities are calculated, refer to Appendix C.

Exhibit 2.9. Quantity of Priority Chemicals for the Previous GPRA Goal (1991-2003)

Reporting Year	Total	Percent Reduction in Total Quantity (compared to 1991 baseline year)
1991	142,045,899	Baseline
1992	141,345,018	-0.5%
1993	139,826,640	-1.6%
1994	98,367,789	-30.7%
1995	100,267,215	-29.4%
1996	75,882,329	-24.3%
1997	87,552,416	-38.4%
1998	74,930,236	-47.2%
1999	72,382,007	-49.0%
2000	82,090,832	-42.2%
2001	68,813,242	-51.6%
2002	66,930,855	-52.9%
2003	57,713,454	-59.4%

Exhibit 2.10 shows the trend for the quantity of the 17 PCs from 1991-2003.

Exhibit 2.10. Trend for Reducing the 17 Priority Chemicals for the Previous GPRA Goal

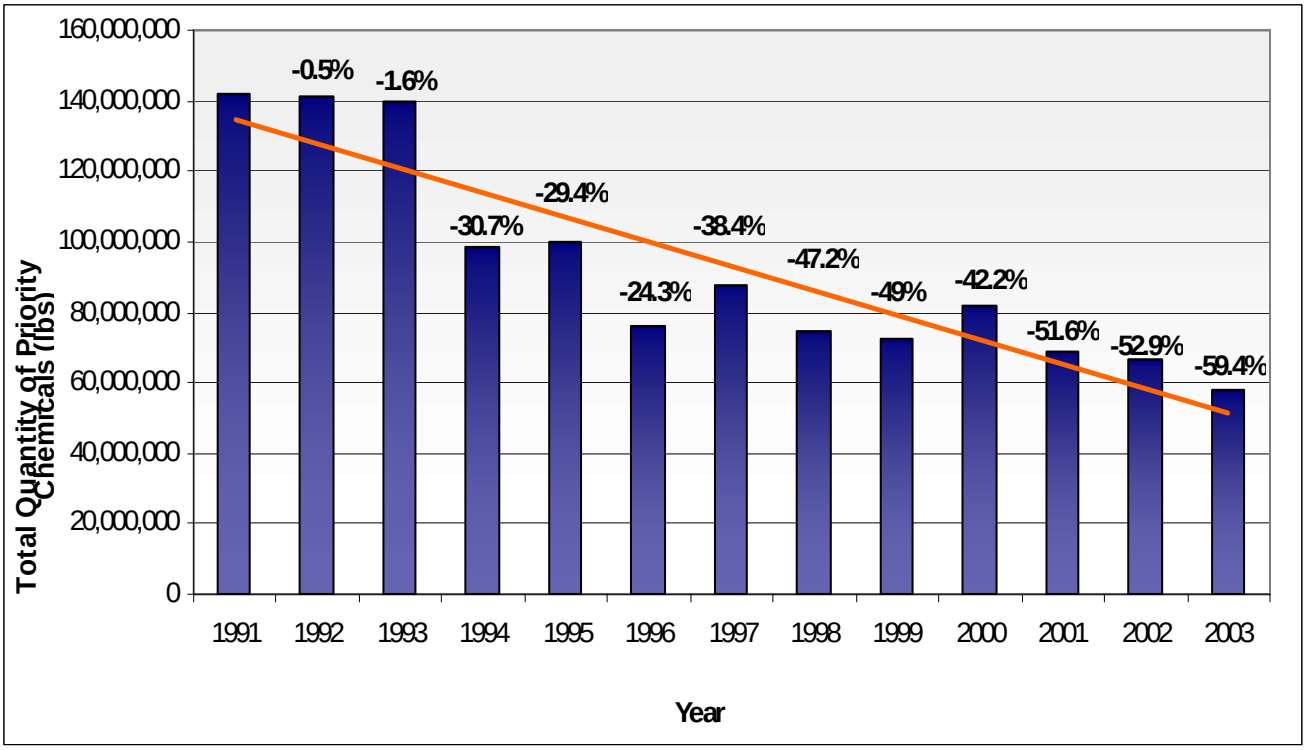


Exhibit 2.11 shows the quantity and percent change in quantity for each of the 17 PCs that were tracked for the previous GPRA goal. Five chemicals, lead/lead compounds, naphthalene, hexachloro-1,3-butadiene, hexachloroethane, and hexachlorobenzene, comprised 90 percent of the total quantity of all 17 PCs with lead and lead compounds, on average, accounting for almost 54 percent of the total quantity.

Exhibit 2. 11. Quantity (lbs) of Priority Chemicals for the Previous GPRA Goal and Percent (%) Change of Priority Chemicals (1991 – 2003)

CHEMICAL NAME	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	Change in Quantity (1991-2003)
Lead and Lead Compounds	73,601,763	69,249,966	72,176,431	58,845,289	59,646,175	37,043,077	48,019,789	44,111,857	36,505,522	39,762,761	36,602,052	38,177,720	29,471,976	-44,129,787
Naphthalene	26,849,289	36,427,616	29,442,639	13,986,934	15,911,237	19,324,812	12,872,268	14,226,358	13,714,903	14,245,495	9,858,953	10,646,738	9,883,293	-16,965,996
Hexachloro-1,3-Butadiene	11,487,710	7,776,137	5,514,269	4,675,991	7,077,108	6,453,638	8,411,397	4,471,095	8,764,908	11,310,430	6,482,741	5,189,385	5,575,299	-5,912,411
Hexachlorobenzene	5,196,864	3,795,442	4,873,040	3,157,118	3,305,312	2,441,293	1,852,294	1,764,080	5,401,730	5,927,106	5,752,328	4,198,849	4,249,203	-947,661
Cadmium and Cadmium Compounds	2,163,767	1,992,935	4,690,954	3,138,634	2,836,856	2,305,992	8,978,808	3,474,777	1,872,205	2,739,420	2,938,385	2,055,831	3,318,753	1,154,986
Hexachlorophenol	5,269,668	2,694,971	3,142,574	11,812,462	6,303,541	5,733,207	4,253,357	4,892,537	3,625,414	5,711,336	4,149,611	4,057,802	2,734,872	-2,534,796
1,2,4-Trichlorobenzene	1,130,126	2,001,186	5,957,066	1,221,930	1,548,784	906,489	748,218	840,998	1,371,314	1,164,139	2,124,726	1,530,319	1,672,756	542,630
Anthracene	10,820,718	11,626,279	8,056,039	544,851	2,068,065	443,909	323,376	335,021	425,638	508,537	361,470	327,875	397,714	-10,423,004
Quintozene	62,715	3,507	522,668	543,703	759,727	620,725	334,189	355,968	222,854	311,155	216,259	209,092	236,057	173,342
Dibenzofuran	5,068,619	5,073,760	5,060,120	90,056	417,802	43,646	72,188	143,086	143,640	116,010	86,229	297,123	61,284	-5,007,335
Trifluralin	82,759	82,373	36,309	124,842	207,157	200,534	1,539,453	103,803	91,103	84,713	80,975	57,938	44,101	-38,658
Pentachlorophenol	105,898	246,711	191,764	165,723	130,969	299,024	103,053	147,488	172,656	67,021	42,778	32,707	33,431	-72,467
2,4,5-Trichlorophenol	28,000	0	0	0	0	0	0	23,226	26,098	32,443	20,657	17,913	22,857	-5,143
Mercury and Mercury Compounds	176,037	264,370	83,153	51,282	46,555	45,673	41,226	31,670	41,302	110,185	96,029	131,381	11,788	-164,249
Lindana	1,801	1,512	94	668	3,226	1,192	2,800	8,272	2,720	62	49	183	71	-1,730
Methoxyclor	161	253	1	6	0	807	0	0	0	19	0	0	0	-161
Heptachlor	4	108,000	79,519	8,300	4,701	18,311	0	0	0	0	0	0	0	-4
Total	142,045,899	141,345,018	139,826,640	98,367,789	100,267,215	75,882,329	87,552,416	74,930,236	72,382,007	82,090,832	68,813,242	66,930,855	57,713,454	-84,332,445
Percent change in Total Qty (1991-2003)	**Baseline Qty.**	**-0.5%**	**-1.6%**	**-30.7%**	**-29.4%**	**-46.6%**	**-38.4%**	**-47.2%**	**-49.0%**	**-42.2%**	**-51.6%**	**-52.9%**	**-59.4%**	